

Show ALL work in space provided and *clearly mark final answer* to receive any credit!

Factor out the greatest common factor from the polynomials:

1. $7x - 42y + 7$

2. $b(d^3 + 7) + (d^3 + 7)$

Factor the four-term polynomial by grouping; if possible:

3. $8x^3 - 24x^2 + 7x - 21$

4. $7z^2 - 3xz - 7z + 3x$

5. $5p^2 - 2pq - 10p + 4q$

Factor each polynomial completely; if possible:

6. $x^2 + 8x + 15$

7. $x^2 - 5x - 3$

8. $p^2 + 6pq - 16q^2$

9. $2x^2 + 6x - 56$

10. $20x^2 + 27x + 9$

11. $-40x^3 + 58x^2 - 10x$

12. $15y^2 - 26y + 8$

13. $x^2 - 14xy + 49y^2$

14. $6x^2 - 11x - 10$

15. $3x^3 + 14x^2 + 15x$

Factor the following binomials completely:

16. $x^3 + 27$

17. $9x^2 - 16$

18. $x^4 - 16$

19. $16xy^2 - 9x$

Solve the following equations:

20. $(x+9)(x-3)=0$

21. $x^2+10x-24=0$

22. $3x^2+16x=12$

23. $3x^3 - 4x^2 - 7x = 0$

24. $x(x + 15) = 0$

25. $x^2 + 2x = 0$